LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

October 19, 1993

Mr. Leo Dreyer
Shook, Hardy & Bacon
One Kansas City Place
Kansas City, Missouri

Subject: Proposal to Conduct an Indoor Air Quality Building Study
Law Engineering Proposal No. 55693126

Dear Mr. Dreyer:

Law Engineering, Inc. (LAW) is pleased to present this proposal to conduct an Indoor Air Quality (IAQ) Building Study for your client. This proposal, which is provided in response to your Request for Proposals dated October 8, 1993, presents our understanding of the project and our proposed scope of services. Attachments include:

1. Qualifications and Resumes
2. Cost Breakdown and Fee Schedule
3. Proposal Acceptance Sheet

BACKGROUND

We understand that your client is planning to conduct a three-phased IAQ Building Study in several of their office buildings:

- During the first phase ("Pilot Study"), indoor air quality surveys will be conducted in two buildings
- During the second phase ("Building Study"), indoor air quality surveys will be conducted in ten additional buildings
- During the third phase ("Smoking Lounge Study"), design and cost options for smoking lounges will be developed for three of the twelve surveyed facilities

The purposes of this study are to (1) evaluate the impact of smoking policies and ventilation system performance on environmental tobacco smoke (ETS) exposures of non-smoking building occupants and (2) assess the efficacy and costs of various smoking policies and ventilation system parameters used to control ETS exposures.

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SCOPE OF SERVICES

Pilot Study. During an estimated 3-day site visit at each of two office buildings, a LAW indoor air quality specialist will:

- Review building-related information (e.g., age, size, and occupancy), smoking policies, and the nature and distribution of any indoor air quality concerns and complaints with building management
- Review the ventilation system design, observe operating procedures, and conduct limited airflow measurements to determine ventilation rates and assess compliance with ASHRAE Standard 62-1989, *Ventilation for Acceptable Indoor Air Quality*. Ventilation plans and equipment schedules, if available, should be provided for review either prior to or during the onsite visit
- Review the preventative maintenance program for the ventilation system and observe the condition of system components, including air filters, condensate drain pans, cooling coils, and humidifiers
- Conduct direct-reading measurements of respirable particulate, carbon dioxide, carbon monoxide, temperature, and relative humidity levels throughout the building and compare results with recommendations contained in ASHRAE Standard 62-1989 and 55-1992, *Thermal Environmental Conditions for Human Occupancy*
- Collect 6- to 8-hour air samples at 20 locations, including both smoking and non-smoking areas, for nicotine analysis (we anticipate using personal sampling pumps to collect these samples)
- Collect 6- to 8-hour air samples on 20 employees, including smokers and non-smokers, for nicotine and 3-ethenyl pyridine analyses (we anticipate using personal sampling pumps to collect these samples)
- As an option at additional cost, we can also conduct area air sampling for volatile organic compounds (VOCs). Results will be reported for each identified VOC and for total VOCs. Results for individual VOCs will be compared to Occupational Safety and Health Administration (OSHA) permissible exposure limits, where applicable. Results for total VOCs will be compared to the 3 to 5 milligrams per cubic meter (mg/m^3) upper limit recommended by some IAQ researchers. VOC sampling is sometimes helpful in explaining differences between "complaint" and "non-complaint" areas but, in our experience, rarely yields much useful information in a proactive study such as this.

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Collected air samples will be analyzed in American Industrial Hygiene Association-accredited laboratories. Upon receipt of laboratory data, we will prepare a written report describing our methods and findings for both buildings, including a statistical comparison of air contaminant concentrations in smoking and non-smoking areas.

Building Study. During an estimated 3-day site visit at each of ten office buildings, a LAW indoor air quality specialist will perform the same tasks outlined for the Pilot Study. We understand that some procedural refinements may be made based on experience gained during the Pilot Study and that the number of personal air samples collected at each building may be increased from 20 to either 50 or 100. We will prepare a written report describing our methods and findings for the ten buildings.

Smoking Lounge Study. For each of the three buildings selected by your client, we will generate a full set of construction documents (technical specifications and plans) to convert designated rooms to smoking lounges:

- The designated rooms shall be part of a standard office facility and may be an existing lounge (not presently designated smoking) or other similar, air-conditioned area
- The final smoking lounge shall consist of an area separated from the adjacent office areas for the purpose of restricting ETS contact. The new lounge shall be designed in accordance with all current OSHA, EPA, NIOSH, ASHRAE, and BOMA guidelines and recommendations. Specific effort shall be made to conform to the anticipated OSHA directives on ETS
- The specific method of achieving the separation of the smoking lounge environments may be one of the following strategies: Negative Pressure Zoning, Displacement Ventilation, or Separate Exhaust
- The design shall consist of at least two different strategies, along with a budget estimate of construction and operational costs for each strategy, and a discussion of the anticipated effectiveness of each strategy
- The designs shall be written for competitive bidding on each strategy as independently exclusive options by respondent contractors.

ESTIMATED FEES, SCHEDULING & STAFFING

Estimated total costs for each of the three project phases, proposed project time frames, and project staffing are presented on the next page. A complete breakdown of project costs is presented in Attachment 2. Resumes for key project personnel are presented in Attachment 1.

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Pilot Study

Approximate Cost (not including VOCs)	$22,850
Proposed Schedule	
• Begin Field Work	within 5 days of written authorization
• Complete Field Work	2 weeks
• Complete Laboratory Analysis	3 weeks
• Complete Report	3 weeks
• TOTAL	8 weeks
Staffing	
• Project Principal & Manager	Steven Tochilin, CIH
• Staff Professionals	Chris Everett
	Alpesh Maurya

Building Study

Approximate Cost (not including VOCs)	
- for 20 personal samples/building	$104,700
- for 50 personal samples/building	$204,200
- for 100 personal samples/building	$342,000
Proposed Schedule	
• Begin Field Work	within 5 days of written authorization
• Complete Field Work	10 weeks
• Complete Laboratory Analysis	3 weeks
• Complete Report	4 weeks
• TOTAL	17 weeks
Staffing	
• Project Principal & Manager	Steven Tochilin, CIH
• Staff Professionals	Chris Everett
	Alpesh Maurya

- Resumes for additional personnel will be provided if a shorter time frame is required.

Smoking Lounge Study

Approximate Cost	$22,200

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Proposed Schedule

• Begin Field Work	within 5 days of written authorization
• Complete Field Work	2 weeks
• Complete Design and Drawings	4 weeks
• TOTAL	6 weeks

Staffing

• Project Principal & Manager	Steven Tochilin, CIH
• Senior Professionals	Ed Davis, PE
	Ken Green, PE

The actual cost of these services will depend on the professional time required, and you will be charged only for actual services performed and expenses incurred at the unit rates shown on the schedule of fees in Attachment 2.

AUTHORIZATION

If this proposal is acceptable, please execute and return a single copy of the attached proposal acceptance sheet giving us formal authorization to perform the work. Please also include any special instructions and proper invoice instructions on the proposal acceptance sheet. The Terms and Conditions are described on the reverse side of the proposal acceptance sheet and are an integral part of this proposal.

We appreciate your consideration of Law Engineering to perform these services and look forward to working with you on this project. If you have any questions concerning this proposal, please contact us.

LAW ENGINEERING, INC.

Steven J. Tochilin, CIH
Principal

Kenneth B. Green, Jr., PE
Senior Engineer

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